WHAT IS CLAIMED IS:

1. A planetary gear reduction device with a torque limiter function, comprising:

(a) a housing;

(b) an input shaft commonly served by an output shaft of a power source, rotatably supported by one of end of said housing, located at a radially central and axially lower portion of said housing and adapted to take in a torque from the power source;

(c) an output shaft rotatably supported by the othe end of said housing, located at a radially central and axially upper portion of said housing adapted to take out the torque transmitted from the power source;

(d) a reduction gear train provided between said input shaft and said output shaft and comprising a plurality of gears meshing with one another; and

(e) a built-in torque limiting mechanism constituted in said reduction gear train,

whereby when an excessive torque is generated in said output shaft, torque transmission from said input shaft to said output shaft is disconnected by an action of said torque limiting mechanism.

2. A device according to claim 1,

wherein said torque limiting mechanism comprises:

a planetary bevel gear which is one gear of said

reduction gear train;

a flange gear mounted to said output shaft freely in an axial direction and fixedly in a circumferential direction and meshing with said planetary bevel gear through inner teeth formed on a bevelled lower end surface thereof;

a compression means provided between an upper surface of said flange gear and a lower surface of an upper lid of said housing and adapted to constantly press said flange gear toward said planetary bevel gear,

whereby when an excessive torque is generated in said output shaft, said planetary bevel gear and said flange gear are disengaged from each other by a reaction force generated between respective teeth of those gears meshing with each other so as to disconnect torque transmission from said input shaft to said output shaft.

3. A device according to claim 1,

wherein said torque limiting mechanism comprises:

a flange gear mounted to said output shaft fixedly in an axial direction and freely in a circumferential direction;

an internal gear formed on an upper surface of said flange gear;

a declutch gear mounted to said output shaft freely in the axial direction and fixedly in the circumferential

direction and adapted to mesh with said internal gear; and

a compression means provided between an upper surface of said declutch gear and a lower surface of an upper lid of said housing and adapted to constantly press said declutch gear toward said internal gear,

whereby when an excessive torque is generated in said output shaft, said declutch gear and said internal gear are disengaged from each other by a reaction force generated between respective teeth of those gears meshing with each other so as to disconnect torque transmission from said input shaft to said output shaft.

4. A device according to claim 1,

wherein said torque limiting mechanism comprises:

a flange gear mounted to said output shaft fixedly in an axial direction and freely in a circumferential direction;

a friction surface portion formed on an upper surface of said flange gear;

a clutch disk mounted to the output shaft freely in the axial direction and fixedly in the circumferential direction and adapted to come in frictional contact with said friction surface portion; and

a compression means provided between an upper surface of said clutch disk and a lower surface of an upper lid of said housing and adapted to constantly press said clutch

disk toward said friction surface portion,

whereby when an excessive torque is generated in said output shaft, said clutch disk and said friction surface portion are disengaged from each other by a reaction force generated therebetween so as to disconnect torque transmission from said input shaft to said output shaft.

5. A device according to claim 1, wherein some of gears of said reduction gear train are helical gears.

6. A device according to claim 2, wherein said compression means is a conical compression spring.

7. A device according to claim 3, wherein said compression means is a conical compression spring.

8. A device according to claim 4, wherein said compression means is a conical compression spring.

9. A planetary gear reduction device with a torque limiter function, comprising:

a sun gear fixedly mounted to an input shaft rotatably supported and located at a radially central and axially lower portion of a housing;

at least one planetary gear meshing with said sun gear through respective teeth formed on their respective outer circumferential surfaces;

a stationary ring gear having inner teeth and meshing with said planetary gear through the inner teeth thereof;

at least one planetary bevel gear coaxially and

integrally mounted on said planetary gear to constitute at least one planetary gear pair;

an output shaft rotatably supported and located at a radially central and axially upper portion of said housing;

a flange gear mounted to said output shaft freely in an axial direction and fixedly in a circumferential direction and meshing with said planetary bevel gear through inner teeth formed on a bevelled lower end surface thereof; and

means provided between an upper surface of said flange gear and a lower surface of an upper lid of said housing and adapted to constantly press said flange gear toward said planetary bevel gear,

whereby when an excessive torque is generated in the output shaft, said flange gear and said planetary bevel gear are disengaged from each other by a reaction force generated between respective teeth of those gears meshing with each other so as to disconnect torque transmission therebetween.

10. A planetary gear reduction device with a torque limiter function, comprising:

a sun gear fixedly mounted to an input shaft rotatably supported and located at a radially central and axially lower portion of a housing;

at least one first planetary gear meshing with said sun gear through respective teeth formed on their respective outer circumferential surfaces;

a stationary ring gear having inner teeth and meshing with said first planetary gear through the inner teeth thereof;

at least one second planetary gear coaxially and integrally mounted on said first planetary gear to constitute at least one planetary gear pair;

an output shaft rotatably supported and located at a radially central and axially upper portion of said housing;

a flange gear mounted to said output shaft fixedly in an axial direction and freely in a circumferential direction and meshing with said second planetary gear through inner teeth formed on a lower portion of an inner circumferential surface thereof;

an internal gear formed on an upper surface of said flange gear;

a declutch gear mounted to said output shaft freely in the axial direction and fixedly in the circumferential direction and adapted to mesh with said internal gear; and

means provided between an upper surface of said declutch gear and a lower surface of an upper lid of said housing and adapted to constantly press said declutch gear

toward said internal gear,

whereby when an excessive torque is generated in said output shaft, said declutch gear and said internal gear are disengaged from each other by a reaction force generated between respective teeth of those gears meshing with each other so as to disconnect torque transmission therebetween.

11. A planetary gear reduction device with a torque limiter function, comprising:

a sun gear fixedly mounted to an input shaft rotatably supported and located at a radially central and axially lower portion of a housing;

at least one first planetary gear meshing with said sun gear through respective teeth formed on their respective outer circumferential surfaces;

a stationary ring gear having inner teeth and meshing with said first planetary gear through the inner teeth thereof;

at least one second planetary gear coaxially and integrally mounted on said first planetary gear to constitute at least one planetary gear pair;

an output shaft rotatably supported and located at a radially central and axially upper portion of said housing;

a flange gear mounted to said output shaft fixedly in

an axial direction and freely in a circumferential direction and meshing with said second planetary gear through inner teeth formed on a lower portion of an inner circumferential surface thereof;

a friction surface portion formed on an upper surface of said flange gear;

a clutch disk mounted to said output shaft freely in the axial direction and fixedly in the circumferential direction and adapted to come in frictional contact with said friction surface portion; and

means provided between an upper surface of said clutch disk and a lower surface of an upper lid of said housing and adapted to constantly press said clutch disk toward said friction surface portion,

whereby when an excessive torque is generated in said output shaft, said clutch disk and said friction surface portion that are in frictional contact are disengaged from each other by a reaction force generated therebetween so as to disconnect torque transmission therebetween.

12. A device according to claim 9, wherein said sun gear, said planetary gear, and said ring gear are helical gears.

13. A device according to claim 10, wherein said sun gear, said first planetary gear, and said ring gear are helical gears.

14. A device according to claim 11, wherein said sun gear, said first planetary gear, and said ring gear are helical gears.

15. A device according to claim 9, wherein said means for pressing is a conical compression spring.

16. A device according to claim 10, wherein said means for pressing is a conical compression spring.

17. A device according to claim 11, wherein said means for pressing is a conical compression spring.

18. A device according to claim 9, wherein a plurality of planetary gear pairs are provided along an inner circumferential surface of said ring gear.

19. A device according to claim 10, wherein a plurality of planetary gear pairs are provided along an inner circumferential surface of said ring gear.

20. A device according to claim 11, wherein a plurality of planetary gear pairs are provided along an inner circumferential surface of said ring gear.